

Q3 presentation

9 November, 2021



BERGEN  
**CARBON  
SOLUTIONS**



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# Agenda

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Q3 highlights



Bergen Carbon Solutions in brief



Technology update



Strategy



Key developments



Outlook and summary



Q & A



Q3

# HIGHLIGHTS

# On track

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We are on track with our technological development and there is strong interest and demand in the market. We have therefore started pre-engineering full-scale factory production units, with several potential locations, both nationally and internationally.

As a result of the positive technological development, we will present updated guiding before the end of the year.



# Ready for small scale production

## Financial results and financing (MNOK)

- Revenue 0.1
- Operating profit -6,5
- Cash balance 118,4
- Number of shareholders >3.000
- Market cap 1.7 BNOK
- From 2022: Quarterly reporting

In Q3 there has been a capital increase which increases the share capital of the company from NOK 97,087.533 by NOK 14,934 to NOK 112,021.533. Total contribution to BCS's equity including share premium is MNOK 28,4 – less expenses directly related to the share issue that is booked directly against Share premium.

\*The figures have not been revised

## Operations

- Option agreement with Vefsn municipality, Norway, 17 August 2021
- CRUSIBLE 1.02 with our new inhouse Programming
- CNF Arena: Cooperation for green material development
- Diegel 2.0: Engineering finished
- Production stabilized after the moving from Arna
- New production employees for 24/7 production

## Subsequent events

- We have entered our first commercial sales agreement with Nanoshel UK (22.10)
- LOI signed with a major Japanese company to develop an additive-solution for use in anode-graphite for lithium-ion based batteries.



# Financial highlights

Key figures	Full year		
Amounts in NOK thousands	Q3 2021	YTD Q3 2021	2020
Total revenue and other income	62	209	1
Total operating expenses	6 602	18 550	4 616
Operating profit (loss)	-6 540	-18 340	-4 615
Net profit (loss) for the period before tax	-6 548	-18 368	-4 654
Net change in cash and cash equivalents	17 978	77 948	-32 994
Cash and cash equivalents, end of period	118 445	118 445	40 497
Equity	130 642	130 642	43 491
Total assets	133 517	133 517	48 544



# BERGEN CARBON SOLUTIONS **IN BRIEF**





WE USE CO<sub>2</sub> TO CREATE

# Carbon Nanofiber



**Lighter**  
than plastic

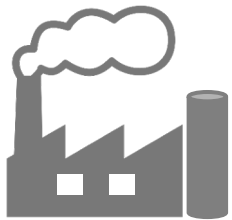
**Stronger**  
than steel

**Leads electricity**  
better than copper



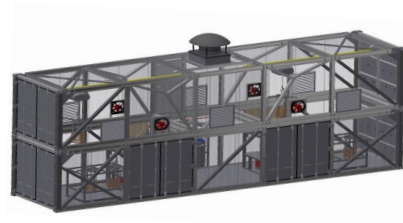
# A pioneer within CO<sub>2</sub> value creation

Enabling sustainable value creation from **CO<sub>2</sub> utilization...**



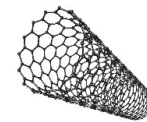
Uses captured or pure CO<sub>2</sub> as main input in CNF production

...through **modular production units** with proven and **superior cost-efficient technology...**

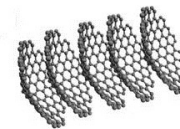


A production module consisting of two 40ft containers is expected to produce 6.5 tonnes CNF a year out of 30 tonnes CO<sub>2</sub>

...producing material with extreme high strength-to-weight ratio and **exceptional thermal and electrical conductivity...**



Carbon nanotubes



Carbon nanofiber

Market price for CNF range from NOK 5 000 to NOK 27 000 per kg, depending on quality

... with a **broad range of application areas**



Aerospace & defence



Electronics



Automotive



Construction



Energy

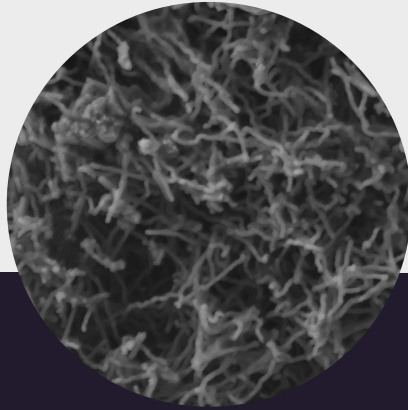


Textiles

New applications are continuously being developed



# Bergen Carbon Solutions at a glance



## GREEN CARBON NANOFIBER TECHNOLOGY PROVIDER

### KEY FACTS



Founded in 2016



Located in Bergen, Norway



Competent team of engineers and PhDs



Unique and patented technology



Commercial production site secured



Listed on Euronext Growth Oslo (Ticker: BCS)

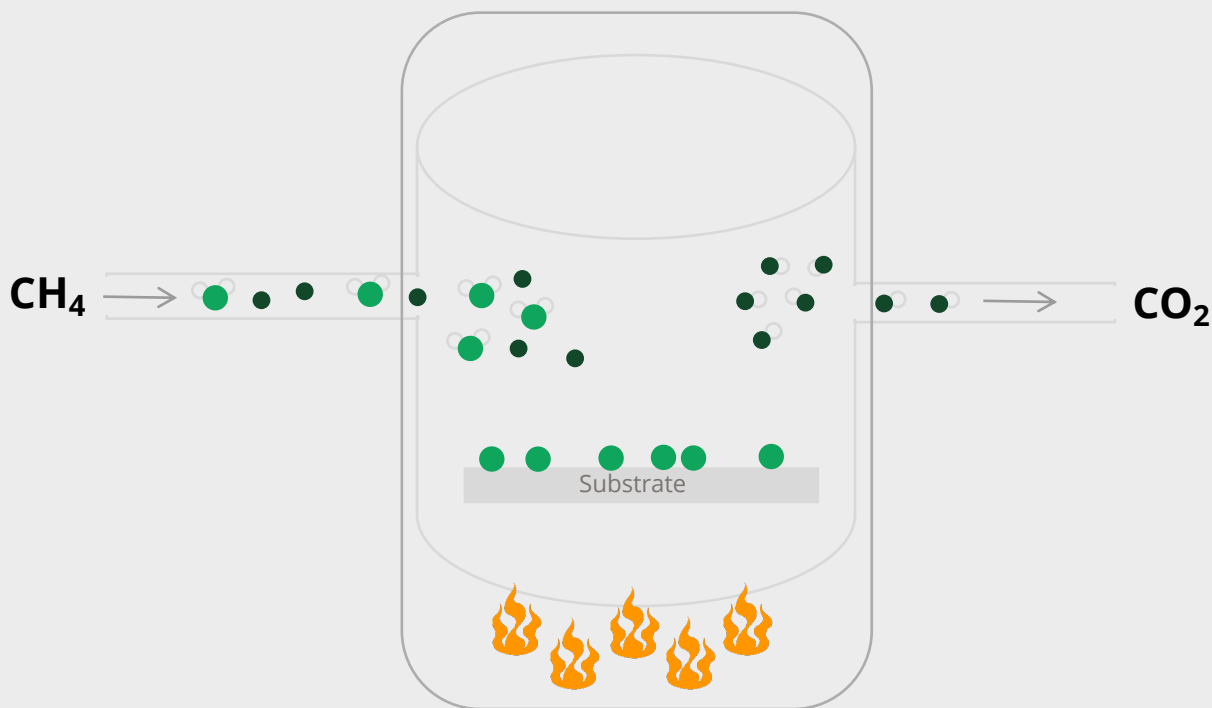




# Our technology uses significantly less energy than conventional methods

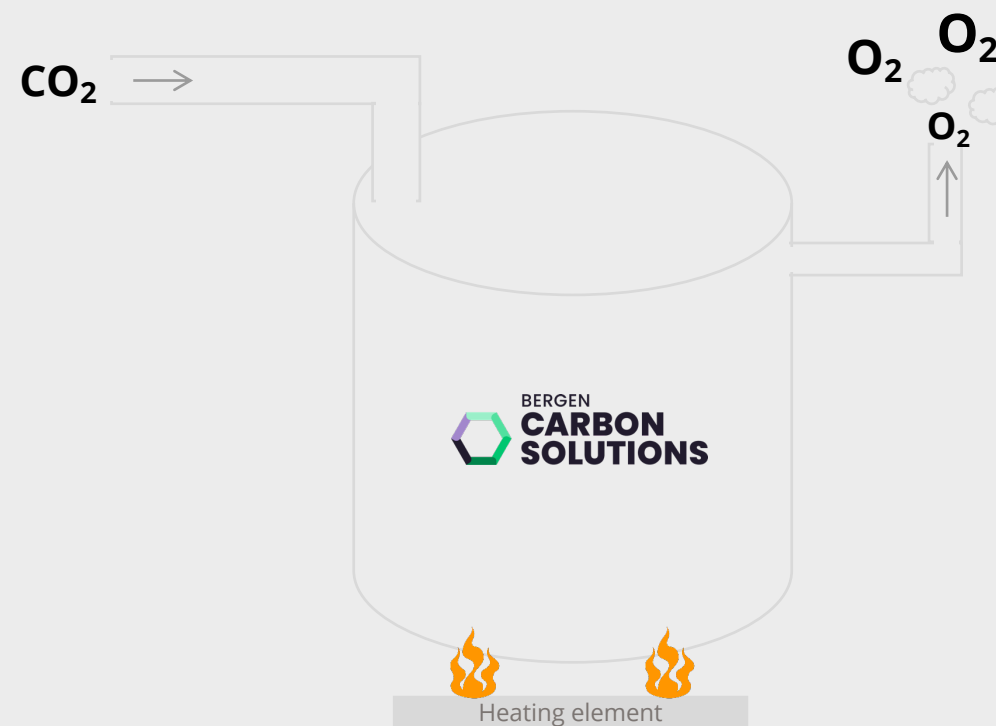
Traditional Method  
**Negative CO<sub>2</sub> impact**

Avg. 1400 kWh/kg CNF



Bergen Carbon Solutions  
**Positive CO<sub>2</sub> impact**

150 kWh/kg CNF





# Zero emission product enabling a low carbon footprint

We've developed an **energy efficient, carbon negative** method to produce CNF out of CO<sub>2</sub>, using **renewable energy**, with O<sub>2</sub> as the only bi-product

Our product **ECO-C** is also known as **green carbon nanofiber**



Converting CO<sub>2</sub> into CNF will **positively contribute to UN's Sustainable Development Goals.**

Our environmental efforts will help our customers:

- Reduce their carbon footprint
- Market their products as carbon positive
- Apply for grants designed for environmental purposes



# TECHNOLOGY **UPDATE**



# One material, two products

## OUR PRODUCT SEGMENTS

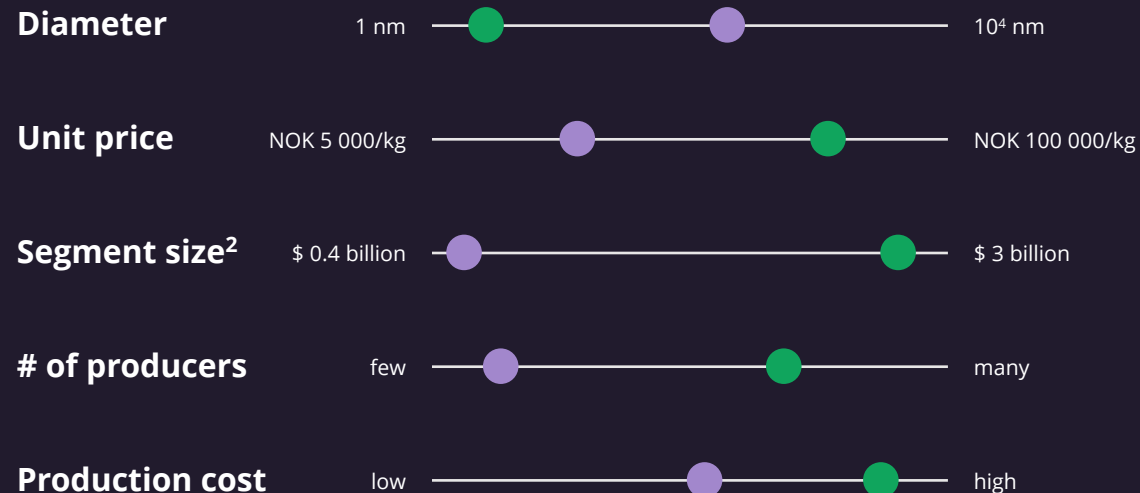
Our technology can produce both **carbon nanofiber (CNF)** and **carbon nanotubes (CNT)**

**CNT** are smaller in diameter, tubular in form and more difficult to produce than CNF, and thus **have a higher product price**

Most of the **production volume in the pilot module** has been **CNF**

Short-term GTM **focus is on CNF**, before expanding into CNT

## HOW THEY COMPARE<sup>1</sup>



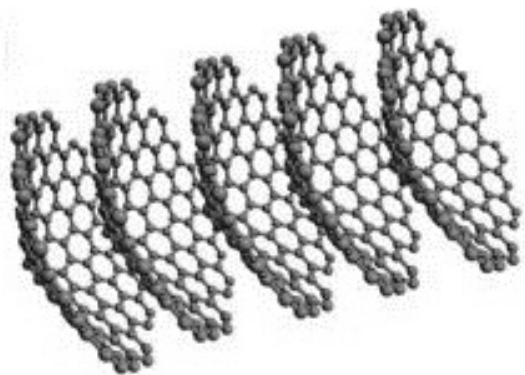
CNF

CNT



# Carbon nanofiber (CNF)

CNF



Lighter than plastic, stronger than steel, with exceptional thermal and electrical conductivity, properties that **can be transferred when combined with other materials**

**Estimated CAGR of 27% towards 2024**, covering a wide range of industrial and technological applications

Market price between **NOK 5 000 per kg** and **NOK 27 000 per kg** depending on quality

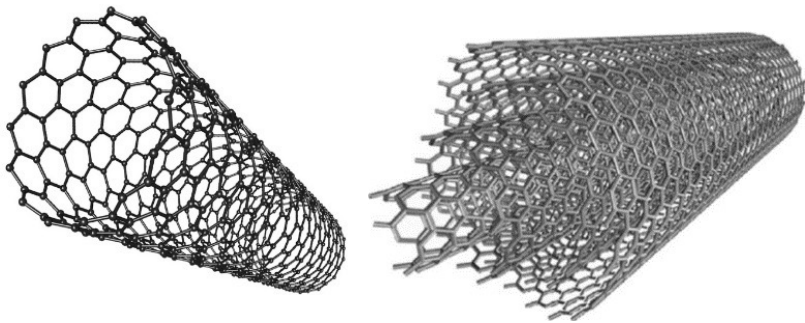
Our products cover the whole range of qualities, meeting different customer needs





# Carbon nanotubes (CNT)

CNT



Lighter than plastic, stronger than steel,  
and **conducts electricity even more efficiently than CNF**

Global CNT market **almost 7x CNF market** with an  
estimated **CAGR of 24% towards 2024**

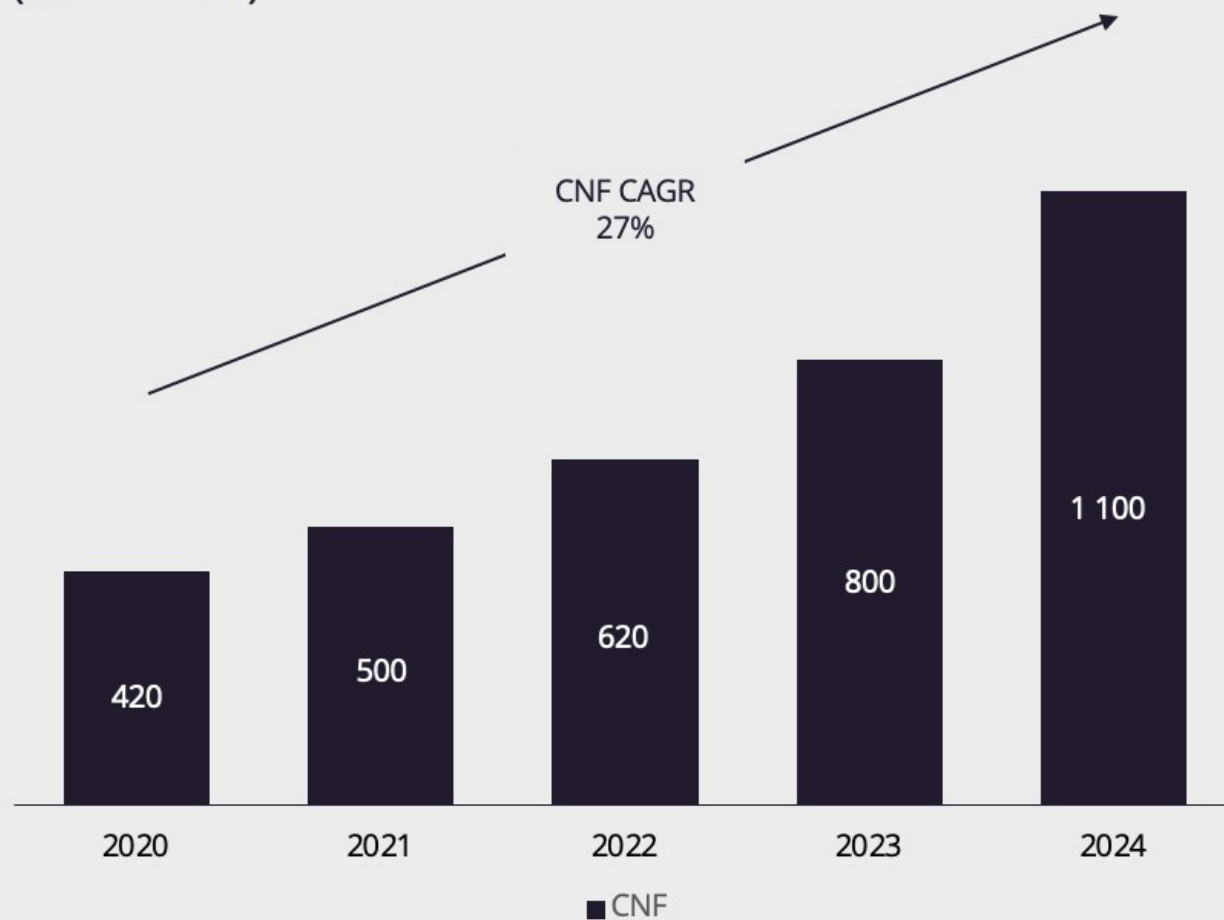
Wide range of applications, ranging from batteries to  
semiconductors, automobile parts, aircraft fuselages  
etc.

Market price between **NOK 18 000 per kg**  
and **NOK 210 000 per kg**

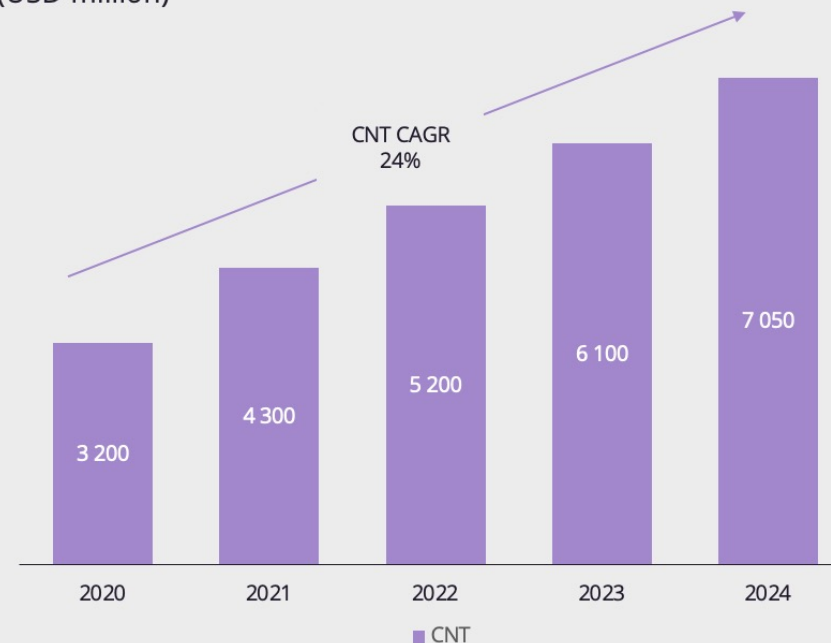


# Total market in 2024 estimated to be NOK 70 billion (USD 8 bn)

## CNF MARKET EXPECTED TO MORE THAN DOUBLE BY 2024 (USD million)



## CNT INCREASES FUTURE MARKET POTENTIAL 7X (USD million)





# Market potential and product segments



400+ potential customers – offtake agreements actively discussed with several companies



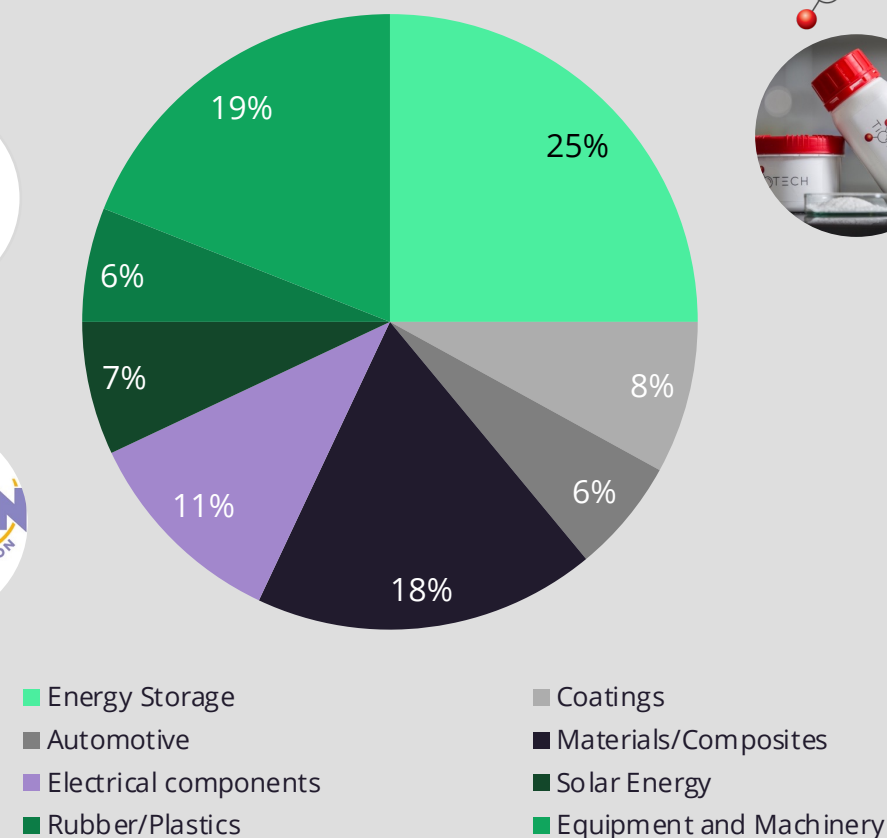
Interest from potential customers in >30 countries



New applications areas continuously being developed through R&D with existing and potential new customers



MARKET SEGMENTS<sup>1</sup>



1: Based on current customer pipeline

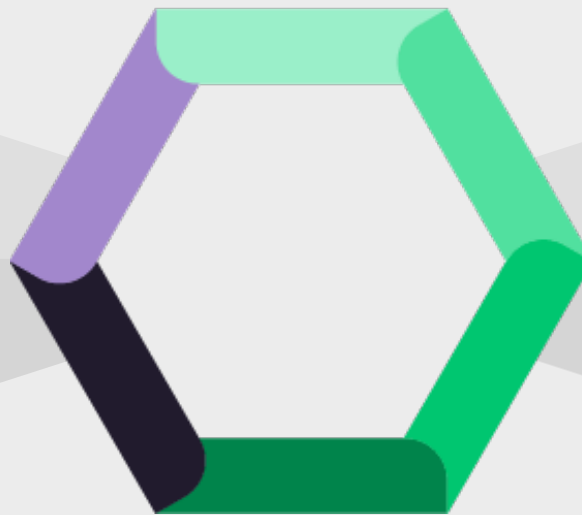


# Attractive and profitable growth opportunity

Example: one production module

**325 000 kWh electricity**  
(average 50-150 kWh/kg CNF)

**30 tonnes CO<sub>2</sub>**



**6.5 tonnes CNF**  
(5 000 – 27 000 NOK/kg)

**O<sub>2</sub>**



CAPEX per module  
17 MNOK<sup>1</sup>



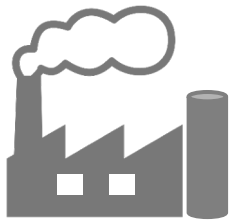
BERGEN CARBON SOLUTIONS  
**STRATEGY**



# Green carbon nanofiber technology provider

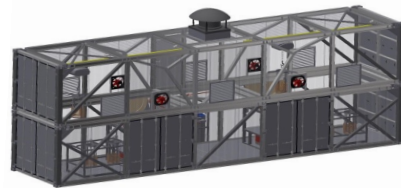
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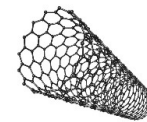
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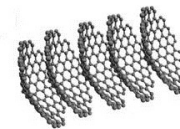


A production module consisting of two 40ft containers is expected to produce 6.5 tonnes CNF a year out of 30 tonnes CO<sub>2</sub>

...producing material with extreme high strength-to-weight ratio and **exceptional thermal and electrical conductivity...**



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Carbon nanofiber

Market price for CNF range from NOK 5 000 to NOK 27 000 per kg, depending on quality

... with a **broad range of application areas**



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Automotive



Construction



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Textiles

New applications are continuously being developed



# Industrial scale roll-out

Test center



BIR Rådalen



Technology Centre  
Mongstad



Alcoa Mosjøen



## Description

Located in Bergen at Flesland Production facility

BIR is the regional waste management company in the Bergen area, with an WtE plant located in Rådalen

Based on our technological development and changed focus against bigger scale factory units, Mongstad as a test center is no longer a suitable location for our industrial scale out. However we are still collaborating and testing CO<sub>2</sub> from TMC in our test center in Bergen, Flesland.

Among the largest aluminum smelter sites in Europe, we have option agreement on plot at Baustein next to Alcoa - see red dot

## Site CO<sub>2</sub> emissions/year

~200 000 tonnes

~400 000 tonnes

## CNF potential with BCS

~40 000 tonnes

~40 000 tonnes

## Planned BCS production

### Feedstock

Clean CO<sub>2</sub>

CO<sub>2</sub> from flue gas

Clean CO<sub>2</sub> with low impurities

### # BCS modules

1 module

1 module

1 - 5 modules

### Exp. CNF volume

3.25 tonnes

3.25 tonnes

6.5 - 32.5 tonnes

### Status

Prod. start exp. Q1 2022

Prod. start exp. Q1 2022

Prod. start exp. Q2 2022



KEY DEVELOPMENTS

# **NEWS & UPDATES**





# News & updates

## NEWS



**started pre-engineering full-scale factory production units**



**Option agreement with Vefsn municipality**



**Crucible 1.02 in operation**



**Our first commercial contract signed**

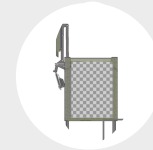


**NEW LOI signed to develop additive solution**

## UPDATES



**Cooperation for green material development**



**Diegel 2.0: The engineering is finished**



**Production stabilized on Flesland**



**Our staff is growing for 24/7 production**



# We have started pre-engineering full-scale factory production units



We have started pre-engineering full-scale factory production units. We are expecting the market to grow rapidly, and the potential scale benefits of a full-scale production factory is expected to significantly reduce our unit cost.

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This is expected to further strengthen our competitive advantage. As a result of the changed focus, we will present updated guiding before the end of the year



# Option agreement with Vefsn municipality



Located in Mosjøen, Norway, with a plot size of 5000m<sup>2</sup>.

Close by Alcoa Mosjøen, one of the major aluminium producers in Norway.

The electricity-prices are significantly lower than in south of Norway, thus affecting BCS production cost.

The employer's tax is significantly lower than in the south of Norway.



# Crusible 1.02 in operation



Our second crucible is now in production on Flesland. Due to the current microchip situation, we have engineered our own inhouse software for running the production units. This makes it much easier to replace hardware if needed, due to long delivery time.

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The new software also enables more stabile and controlled production.

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We are expecting to have higher product quality on crucible 1.02 due to the inhouse software design and implementation.



# Our first commercial contract signed

We are excited to have our first large-scale sales agreement with a partner like Nanoshel, with prices within our guided range. They are a significant supplier of materials for the research and development industry, and we are confident that their costumers would prefer our green carbon-nano fiber over existing highly polluting manufacturing of Carbon nano materials

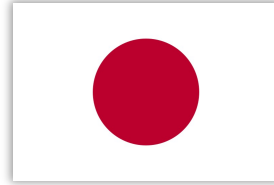
Bergen Carbon Solutions has entered into a sales agreement with Nanoshel, where the annual value is expected in the range of NOK 5 million.

Nanoshel delivers over 1.000 different products to the research and development industry.





# NEW LOI signed to develop additive solution



We are excited to announce that we have entered an LOI with a major Japanese company to develop an additive-solution for use in anode-graphite for lithium-ion based batteries

The solution aims to increase conductivity and reduce resistance in battery anode materials utilizing green carbon nanofiber (CNF) from BCS.

Our goal is to increase range, charging speed and lifetime cycles of batteries, while bringing down CO<sub>2</sub> emissions simultaneously.



# Cooperation for green material development



CNF Arena is a cooperation between MON, Nordland fylkeskommune and Bergen Carbon solutions AS.

CNF Arena is about building a unique and internationally leading professional environment on the development of the green materials of the future.

The current state, is a pre-study. Where we are aiming to deliver an infrastructure application for a fully equipped carbon lab, located in Mosjøen, Norway

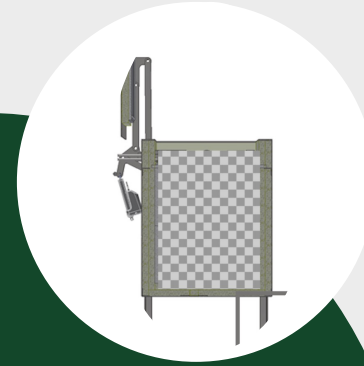


# Diegel 2.0: The engineering is finished

The engineering phase of our new Diegel 2.0 design is finished as guided.

Delivery of parts and assembly is now taking place.

We are on track for production start in Q1 2022 as earlier guided.







# Production stabilized on Flesland



Our new Flesland production is uprunning and stabilized after the change of location from Garnes to Flesland

The current production on Diegel 1.01 and 1.02 are stabilized and in full production

We are ready to start assembly of the first Diegel 2.0 on Flesland in Q4 2021.



# Our staff is growing for 24/7 production.



We are on track for 24/7 production on Flesland as soon as the first Diegel 2.0s are in full production.

We have hired and trained 8 new process operators and implemented a shift-plan for 24/7 production.

Until the Diegel 2.0s are ready for operation, we are producing on two shifts from 06:30-22:30.



# OUTLOOK **SUMMARY**



# Priorities for 2021

Assembling and testing Diegel 2.0

24/7 production at test factory in Bergen

Finishing the contract for purchasing the plot in Mosjøen

Several contracts for selling products to customers

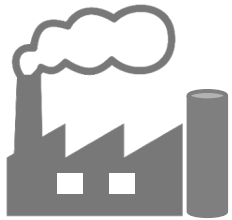
Entering into firm contracts

Further establish key partnerships



# Summary and investment highlights

Enabling sustainable value creation from **CO<sub>2</sub> utilization**...



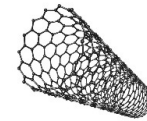
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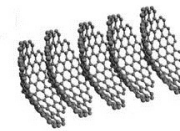


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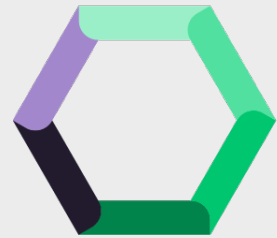


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# Q&A



BERGEN

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